

#### **What is Claimed Is:**

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1. A computer system comprising:  
a local bus,  
a host processor coupled to the local bus,  
a network interface for providing an interface between the local bus and a  
network medium, and  
a memory coupled to the local bus, the memory having receive buffers  
allocated for receiving data from the network medium,  
the network interface including an automatic flow control mechanism for  
automatically controlling a flow of data from the network medium based on  
availability of the receive buffers.

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2. The computer system of claim 1, wherein in a first flow control mode, the  
automatic flow control mechanism is configured to respond to a shortage of the  
receive buffers by automatically requesting a remote transmitter coupled to the  
network medium to suspend data transmission until a predetermined number of the  
5 receive buffers is available.

3. The computer system of claim 2, wherein in a second flow control mode,  
the automatic flow control mechanism is configured to respond to a shortage of the  
receive buffers by automatically requesting the remote transmitter coupled to the  
network medium to suspend data transmission for a predetermined time.

4. The computer system of claim 3, wherein the network interface comprises  
a descriptor management unit for managing receive descriptors pointing to the receive  
buffers.

5. The computer system of claim 4, wherein the automatic flow control  
mechanism is configured to detect availability of the receive buffers by monitoring  
the number of available descriptors pointing to the receive buffers available for  
receiving data from the network medium.

6. The computer system of claim 5, wherein in the first flow control mode,  
the automatic flow control mechanism is configured to automatically request the

remote transmitter to suspend data transmission when the number of available descriptors falls below a first threshold value.

7. The computer system of claim 6, wherein in the first flow control mode, the automatic flow control mechanism is configured to enable the remote transmitter to resume data transmission when the number of available descriptors rises above a second threshold value.

8. The computer system of claim 7, wherein the second threshold value is higher than the first threshold value.

9. The computer system of claim 5, wherein in the second flow control mode, the automatic flow control mechanism is configured to automatically request the remote transmitter to suspend data transmission when the number of available descriptors falls below a preprogrammed threshold value.

10. The computer system of claim 9, wherein in the second flow control mode, the automatic flow control mechanism is configured to enable the remote transmitter to resume data transmission after a preprogrammed time interval, if the number of available descriptors is not less than the preprogrammed threshold value.

11. The computer system of claim 5, wherein the network interface is configured to store information indicating a read pointer of the host processor that points to a next descriptor that should be processed by the host processor after a current receive buffer is read by the host processor.

12. A network interface device for providing an interface between a data network and a computer system, the network interface device comprising:

a descriptor management unit for managing receive descriptors pointing to receive buffers allocated to receive data from the network medium, and

5 an automatic flow control mechanism for automatically performing flow control in accordance with the number of available receive descriptors pointing to the receive buffers available for receiving data from the network medium.

13. The network interface of claim 12, wherein the receive buffers are arranged in a memory of the computer system.
14. The network interface device of claim 12, wherein the automatic flow control mechanism is configured to automatically request a remote station in the data network to suspend data transmission when the number of available descriptors falls below a first threshold value.
15. The network interface device of claim 14, wherein the automatic flow control mechanism is configured to enable the remote station to resume data transmission when the number of available descriptors rises above a second threshold value.
16. The network interface device of claim 15, wherein the second threshold value is higher than the first threshold value.
17. The network interface device of claim 12, wherein the automatic flow control mechanism is configured to automatically request a remote station in the data network to suspend data transmission when the number of available descriptors falls below a preprogrammed threshold value.
18. The computer system of claim 17, wherein the automatic flow control mechanism is configured to enable the remote station to resume data transmission after a preprogrammed time interval, if the number of available descriptors is not less than the preprogrammed threshold value.
19. A method of automatic flow control in a network interface between a data network and a computer system. the method comprising the steps of:  
monitoring the number of receive descriptors pointing to buffers in the computer system available for receiving data from the network, and  
5 automatically requesting a remote station in the data network to suspend data transmission when the number of receive descriptors falls below a first preprogrammed threshold level.

20. The method of claim 19, further comprising the step of enabling the remote station to resume data transmission when the number of receive descriptors rises above a second preprogrammed threshold level.

21. The method of claim 19, further comprising the step of enabling the remote station to resume data transmission after a preprogrammed time interval, if the number of receive descriptors is not less than the first preprogrammed threshold level.